

## Physics 11IB Outline

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Principle Text: Merrill, Physics; Principles and Problems

HL Reference Text: Hecht, Physics:Algebra/Trig edition

[Physics 11 Laboratory Manual](#)

Web Page: <http://physics-pages.wikispaces.com/>

[Data Booklet and Curriculum Guide](#)

HL Only Topics in *Italics*

Topic	Pre-reading in Merrill	Pre-reading in Hecht	Labs
<b>Introduction</b>	<b>Chapters 1 and 2</b>	<b>Chapter 1</b>	
What is Physics?	p3-9	1.1-1.2	traffic
Scientific Measurement	p14-25	1.3-1.6	p15-18
Dealing with Uncertainties	Handout		
Patterns in Data	p26-34	1.7-1.9	Pendulum planning IB IA introduction
<b>Kinematics, 1 D (describing motion).</b>	<b>Chapters 3 and 4</b>	<b>Chapters 2 and 3</b>	
Position and time	p40-50	2.1-2.9	p19-21
Velocity and time	p51-57		moving man
Acceleration	p63-70	3.1-3.5	p22-23
Displacement and time	p71-80	3.6-3.8	video analysis
<b>Forces, 1 D</b>	<b>Chapter 5</b>	<b>Chapter 4</b>	
Newton's Laws	p87-93	4.1-4.4	p34
Weight and friction	p93-99	4.5-4.8	p35 sliding friction
Net force	p100-103	4.1-4.9	pulley and cart
<b>Elastic and Gravitational Forces</b>	<b>Chapter 8</b>	<b>Chapter 5 and 10</b>	
Keppler's Laws	p155-160	5.5	
Gravitational Force	p161-165	5.3-5.4	
Elastic Forces	Classroom notes	10.1	p36
<b>Momentum</b>	<b>Chapter 9</b>	<b>Chapter 7</b>	

Momentum and impulse	p175-180	7.1-7.3	
Conservation of momentum	p180-191	7.4-7.6	p47
<b>Work and Energy</b>	<b>Chapters 10 and 11</b>	<b>Chapter 6</b>	
Definition of work and energy	p197-202	6.1	
Power	p202-204	6.6	p44
Mechanical work	p205-211		
Types of energy	p217-226	6.2-6.3	
Conservation of energy	p227-235	6.4-6.5	p39
<b>Thermal Energy</b>	<b>Chapter 12</b>	<b>Chapters 12-14</b>	
Temperature	p241-247	12.1	
Ideal Gasses	Classroom Notes	12.5	
Heat	p247-255	13.1-13.7	p43
<b>Wave motion</b>	<b>Chapter 14</b>	<b>Chapter 11</b>	
Types of waves	p287-294	11.1-11.3	
Interference and diffraction	p294-302		
<b>Sound waves</b>	<b>Chapter 15</b>	<b>Chapter 11</b>	
Doppler shift, pitch and loudness	p307-313	11.4-11.6	
Resonance, standing waves	p313-324	11.9-11.11	
<b>Light waves</b>	<b>Chapter 16</b>	<b>Chapters 22, 23 and 25</b>	
Nature of light	p329-336	22.1-22.3,22.8-22.14	
Light and matter	p336-342	23.1,23.7-23.8	p48
Polarization	p341-342	25.1-25.3	
<b>Ray Optics</b>	<b>Chapter 17</b>	<b>Chapter 23</b>	
Reflection and refraction	p347-354	23.2-23.6	
Applications of Snell's Law	p356-361	23.4-23.6	p51-52
<b>Interference Patterns</b>	<b>Chapter 19</b>		
Single slit and double slit interference	p392-398	25.4,25.7	
Diffraction gratings	p400-402	25.8	p57
<i>Thin film interference</i>		25.5	
<b>Quantum Theory</b>	<b>Chapter 27</b>	<b>Chapters 28 and 29</b>	
<i>Photoelectric effect</i>	p555-567	28.1-28.2	

deBroglie Wavelength Davisson-Germer		29.1	
<i>Quantum uncertainty</i>	p564-569	29.3, 29.9	
<b>The Atom</b>	<b>Chapter 28</b>	<b>Chapter 27</b>	
History of atomic models	p573-584	27.1-27.6, 28.5	
Present model of the atom	p584-585	29	
<b>Nuclear Physics</b>	<b>Chapters 30 and 31</b>	<b>Chapters 30 and 31</b>	
Radioactivity	p615-624	30.1-30.9	p64
Nuclear force	p639-643	30.3	
Using nuclear energy	p643-653	30.10,31.1,31.4-31.6	
Standard Model/Higgs/Feynman diagrams	P628-635	Ch 31	
<b>Mechanics Overview</b>			Playland Field Trip (May)
<b>Relativity</b>	Handout	<b>Chapter 26</b>	p59
Relativity of space, time, mass and velocity		26.1-26.7	
<i>Relativistic dynamics</i>		26.8-26.9	
<i>General Relativity</i>	<i>Notes</i>		
<b>Nuclear/Relativity Overview</b>			Triumf at UBC Field Trip (June)

## Expectations

Successful students are involved students. Ask and answer questions in class, complete all work the day it is assigned and see me after school if you have questions. Seek out enrichment such as working ahead in Hecht, trying physics contests or online resources.

Students must attend all classes and field trips. When absent, a signed note from a parent or guardian is required. Students missing tests or quizzes will receive a 0 unless a note is given. Late students will stay after class. Unproductive use of phones or calculators will result in confiscation of the devices.

Marks will be awarded as follows: 25% for laboratory reports and assignments, 10% for quizzes and 65% for tests. Copying or letting another student copy tests or laboratory work will result in a 0 on that paper and the possibility of expulsion from IB. This includes copying data from your lab partner; you must copy down your own data as it is collected. Late assignments will be assessed a 20% penalty per class.

Have a one inch binder for physics and keep it organized. Students are expected to bring their own text and supply a sturdy cover, their lab manual, a three ring binder, a large supply of paper, a scientific calculator, and millimetre graph paper. Graph paper can be bought at a stationary store, printed out using a table or borrowed and photocopied. Students who have difficulties carrying their books to class can join me in the weight room after school for strengthening exercises.